

**Bonneville Power Administration  
Fish and Wildlife Program FY99 Proposal**

**Section 1. General administrative information**

## **White Salmon River Watershed Enhancement Project**

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**Bonneville project number, if an ongoing project**     9156

**Business name of agency, institution or organization requesting funding**

White Salmon River Watershed Management Committee "WMC". WMC is coordinated by Underwood Conservation District (UCD).

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**Business acronym (if appropriate)**     UCD

**Proposal contact person or principal investigator:**

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**Subcontractors.**

<b>Organization</b>	<b>Mailing Address</b>	<b>City, ST Zip</b>	<b>Contact Name</b>
USDA Forest Service (USFS)	HWY 141	Trout Lake, WA 98650	Betsy Scott Bengt Coffin
US Fish and Wildlife Service (USFWS) (in-kind contribution only)	510 Desmond Drive #102,	Lacey, WA 98503	Joe Hiss
Yakama Indian Nation (in-kind contribution only)	P.O. Box 151	Toppenish, WA 98948	Lee Carlson Richard Visser

**NPPC Program Measure Number(s) which this project addresses.**

22A, 2.2C, 3.1A, 4.1A, 7.1A, 7.8G, 7.8H, 7.8I, 7.8J, 7.10A, 7.10B, 10.5A

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**NMFS Biological Opinion Number(s) which this project addresses.**

NA

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**Other planning document references.**

White Salmon River Watershed Enhancement Plan (1994), UCD Water Quality Investigation Report (1994), Northwest Forest Plan Record of Decision (1994), Endangered Species Act, Joint Agency/Tribal Plan for the Ecosystem Restoration of the White Salmon River (1995), Wy Kan Ush Me Wa Kush., Upper White Salmon River Watershed Assessment (1995), Trout Lake Creek Watershed Assessment (1996), Rattlesnake Creek Watershed Assessment (1994)

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**Subbasin.**

White Salmon River subbasin

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**Short description.**

A comprehensive, five-year plan aimed to improve instream, riparian and upslope watershed conditions and land stewardship through direct restorative actions, cooperative work with stakeholders, and promoting education and citizen involvement.

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**Section 2. Key words**

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
*	Anadromous fish		Construction	X	Watershed
X	Resident fish		O & M		Biodiversity/genetics
	Wildlife		Production		Population dynamics
	Oceans/estuaries		Research	*	Ecosystems
	Climate	*	Monitoring/eval.		Flow/survival
	Other	X	Resource mgmt		Fish disease
			Planning/admin.		Supplementation
			Enforcement		Wildlife habitat en-
			Acquisitions		hancement/restoration

**Other keywords.**

Watershed restoration, Water quality, Education, Citizen watershed management committee, Threatened and Endangered Species.

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**Section 3. Relationships to other Bonneville projects**

Project #	Project title/description	Nature of relationship
	White Salmon Whitewater Trash Rodeo event	BPA Aircraft Services donated helicopter for the accomplishment of

		river trash removal in 1996 and 1997.

## Section 4. Objectives, tasks and schedules

### *Objectives and tasks*

<b>Obj 1,2,3</b>	<b>Objective</b>	<b>Task a,b,c</b>	<b>Task</b>
1	(Coordination) Coordinate, guide, and monitor accomplishment of watershed assessment and restoration activities by continuing to support the White Salmon Watershed Management and Technical Advisory Committees.	a	Facilitate quarterly meetings of the Watershed Management Committee (WMC) to conduct planning and track progress (1999-2003).
		b	Coordinate quarterly Technical Advisory Committee (TAC) workshops to develop and review technical project designs and conduct interagency work (1999-2003).
		c	Draft 5-year update of the White Salmon River Watershed Management Plan (1999).
		d	Develop a Plan of Work each year to clarify and refine annual program objectives (1999-2003).
2	(Assessment) Identify and document water quality and fish habitat conditions, fish bearing stream reaches, diversion features, and watershed restoration projects.	a	Conduct stream surveys on 40 miles of private and public lands to assess: channel condition, fish habitat and populations, riparian condition, and restoration needs (1999-2001).
		b	Inventory all potential fish passage problems in the watershed (including irrigation diversions) in cooperation with landowners and irrigation companies (1999-2001).

		c	Combine existing and new information in a common database that is linked to the GIS maintained by the USFS. This work would be done under a MOU to be developed between the USFS and UCD (1999-2001).
3	(Restoration) Implement actions to restore upland hydrologic functions, reduce sediment, increase shade and LWD recruitment in riparian areas, and protect fish from entrapment in irrigation ditches. All projects will be monitored for effectiveness.	a	Decommission 20 miles of road on private, state and federal land in the Rattlesnake, Trout Lake, Buck Creek, and Upper White Salmon subwatersheds (1999-2003).
		b	Install 25 miles of riparian protection fence in Rattlesnake, Gilmer, and other priority subwatersheds (1999-2003).
		c	Conduct site preparation, including thinning, and plant 60,000 conifers in riparian areas. Planting will occur on 6.5 miles of Rattlesnake, and 5.7 miles of lower Trout Lake Creek (2000-2003).
		d	Thin an additional 30 acres of riparian hardwoods (2000-2003).
		e	Install up to seven irrigation diversion screens throughout the watershed in cooperation with private landowners (2000-2003).
		f	Establish six permanent photo stations and conduct semi-annual photodocumentation of all restoration projects identified in Tasks a-e (above) to assess project effectiveness (e.g. via plant community response) (1999-2003)
4	(Education) Expand public involvement and environmental education throughout the watershed through projects that will involve landowners and students in on-the-ground	a	Implement "Watershed Conservation Warehouse" (WCW) project to create a shared stockpile of watershed emergency response materials (erosion mat, silt fence, oil booms, etc.) for cooperative

	restoration, monitoring activities, and watershed planning processes.		use on private, state, and federal lands (1999-2000).
		b	Involve students and citizens in the construction, installation and monitoring of various items (watershed commodities such as educational signs, kiosks and erosion control structures) intended to enhance water quality and watershed health (1999-2003).
		c	Host bi-annual White Salmon River Whitewater Trash Rodeo designed to involve 70 landowners per event in solid and toxic waste clean-up and innovative clean-up methods (1999-2003).
		d	Assist Columbia High School StreamWalk class (20 students per year) in conducting water quality monitoring, riparian assessments, and restoration project implementation on Rattlesnake Creek (1999-2003).
		e	Sponsor a White Salmon Watershed restoration symposium at project completion to define the current state of the White Salmon, and transfer technical and educational information pertaining to project accomplishments and future restoration needs (2003).
5	(Monitoring) Validate overall effectiveness of restoration work and track water quality conditions over time.	a	Perform quarterly/discretionary water quality monitoring at 18 sites in the watershed to continue ongoing baseline data collection and to identify trends in water quality conditions (1999-2003).
		b	Review and analyze water quality data annually at TAC workshops, update databases, and document changes in conditions or assumptions (1999-2003).

**Objective schedules and costs**

<b>Objective #</b>	<b>Start Date mm/yyyy</b>	<b>End Date mm/yyyy</b>	<b>Cost %</b>
1	10/1998	9/2003	12.00%
2	10/1998	9/2001	27.00%
3	10/1998	9/2003	35.00%
4	10/1998	9/2003	14.00%
5	10/1998	9/2003	12.00%
			<b>TOTAL 1088.00%</b>

**Schedule constraints.**

NA

**Completion date.**

2003

**Section 5. Budget*****FY99 budget by line item***

<b>Item</b>	<b>Note</b>	<b>FY99</b>
Personnel		53,498
Fringe benefits	26% of composite rates	18,796
Supplies, materials, non-expendable property		19,017
Operations & maintenance	phone, supplies, mailing, and rent	3528
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		
PIT tags	# of tags:	
Travel		3367
Indirect costs		
Subcontracts		28,100
Other	In-kind commitment for 1999 - \$117, 990	
<b>TOTAL</b>		<b>\$126,306</b>

***Outyear costs***

<b>Outyear costs</b>	<b>FY2000</b>	<b>FY01</b>	<b>FY02</b>	<b>FY03</b>
Total budget	130,684	135,372	99,337	106,975
O&M as % of total	3	3	4	4

## **Section 6. Abstract**

The White Salmon River is a federally listed “wild and scenic” waterway, which was placed on the Washington State’s 303(d) “water quality limited list” in 1994. Anadromous fish passage on the river is blocked by Condit Dam at river mile 3.3. The dam operators are currently being required to provide fish passage, and dam removal is a viable possibility.

The reintroduction of anadromous fish and protection of resident trout requires quality habitat. The overall goal of this proposal is to restore and improve water quality and fish habitat in the White Salmon River subbasin. Specific objectives include: coordination and monitoring of watershed assessment and restoration activities by supporting the White Salmon River Watershed Management and Technical Advisory Committees; evaluation and documentation of water quality, fish habitat, and riparian conditions; restoration of hydrologic conditions and elimination of water quality degradation sources; and education of the public on watershed issues. These objectives will be accomplished by the Underwood Conservation District, the White Salmon River Management Committee, the White Salmon River Technical Advisory Committee, the Gifford Pinchot National Forest, the Yakima Indian Nation, and the US Fish and Wildlife Service. Immediate high priority restoration needs will be met and, and all restoration projects will be monitored (some by permanent photo documentation sites).

This five year project will begin in 1999 and end in 2003. The final outcome will be improved water quality and fish habitat conditions in the subbasin, and development of a comprehensive management plan for the entire White Salmon River subbasin which will protect and improve water quality and fish habitat conditions in the future.

## **Section 7. Project description**

### **a. Technical and/or scientific background.**

The White Salmon River is a federally listed “wild and scenic” waterway which is classified as “water quality limited” by the Washington Department of Ecology (DOE). This classification came after the UCD, USFS, and Yakama Indian Nation documented coliform bacteria levels and water temperature in major tributaries exceeding the Washington class AA limit (WA Department of Ecology, 1989; Mathews, 1992; Coffin, 1993; WA Department of Wildlife, 1990; Stampfli, 1992). The UCD also documented nonpoint pollution concerns in the White Salmon subbasin including sediment; nutrients from livestock; dairies; crop and orchard fertilization; and pesticides from crops, orchards, roadside spraying, and timber productions (UCD, 1989).

The UCD began the White Salmon River Basin Assessment and Enhancement Project in 1991 and guided formation of the White Salmon River Watershed Management Committee (WMC). The Gifford Pinchot National Forest has been a major player in this

project. The committee is a community-based partnership that encourages and facilitates sound land management practices to ensure high water quality within the watershed

The objectives of past and present efforts are to: conduct a thorough assessment of basin condition, develop a comprehensive watershed management plan, implement the management plan, and monitor the improvements. An initial assessment of water quality and land use was accomplished in 1994. More recently, detailed watershed analyses have been completed on the Rattlesnake Creek (Champion, 1997), Trout Lake Creek (USFS, 1995); Cave/Bear Creeks, and the upper White Salmon (USFS, 1995) subwatersheds using Department of Natural Resources (DNR) and the USFS processes. Simultaneous to assessment, the White Salmon Watershed Management Committee (WMC) formed and began implementing a DOE-approved watershed enhancement plan that recognizes priorities of the various assessments and outlines the restoration goals.

Because Condit Dam blocks all fish passage at river mile 3.3 on the White Salmon River, no anadromous fish have inhabited the river above this point since 1913. Prior to that time, chinook, coho, and steelhead inhabited the upper watershed. PacifiCorp Electric Operations recently applied to FERC for a new license to operate Condit Dam, and they are being required to provide for fish passage. A cost analysis on dam removal is currently underway.

The reintroduction of anadromous fish and protection of resident fish requires quality habitat. The resident rainbow trout in the river have been identified as four genetically distinct populations with no hatchery introgression (Phelps, 1990). These trout were designated as an Outstanding Remarkable Value in the Lower White Salmon River Wild and Scenic designation. Maintenance of high water quality, ecological processes, and the entire community of organisms within the watershed is a must to support native fish assemblages.

**b. Proposal objectives.**

Type here (provide answers in paragraph form)

Objective 1. Coordinate, guide and monitor accomplishment of watershed assessment and restoration activities by supporting the White Salmon Watershed Management and Technical Advisory Committees.

Products:

Task a). A stable, broadly represented, and functional watershed council will be institutionalized within the basin to guide future restoration, education, cost-sharing programs, technical assistance programs and monitoring. This work will be accomplished through 20-25 regular meetings over the next five years. Specific products to be achieved include yearly work plans and a 5-year update of the White Salmon River Watershed Enhancement Plan document.

Task b). A qualified technical advisory committee (TAC) will be organized and supported to provide agency coordination and technical design support to the WMC.



This group will meet a minimum of 20 times over the project's life. Specific products produced by the group will include drafting of at least 5 project plans-and-specifications, a yearly review of all basin monitoring data from which next year's restoration goals will be derived, and development of a process intended to provide timely review and input of watershed council recommendations into restoration plans produced by land management agencies (e.g., USFS).

Tasks c) and d). A five-year update of the White Salmon River Watershed Enhancement Plan will be drafted to lay out goals and objectives for the next five year period. Work Plans will be developed annually to refine project objectives, establish schedules, and coordinate the year's work.

Objective 2. Identify and document water quality and fish habitat conditions, fish bearing stream reaches, diversion features, and watershed restoration projects.

Products:

Task a). A detailed description of habitat and channel conditions will be developed for 40 miles of fishbearing streams in the watershed, with restoration needs prescribed. Surveys will provide information to allow mapping the presence/absence and extent of bull trout, cutthroat, rainbow, and brook trout in the watershed. Grazing management needs will also be identified through surveys of riparian conditions.

Task b). A comprehensive inventory and evaluation of all water diversions and fish passage barriers will be documented for private and public lands.

Task c). A common database will be adopted and populated with new and existing data to provide better access and more complete information on water quality, fish habitat, and channel conditions for the entire watershed (federal, state, and private lands). This work will be done under an MOU to be developed between the UCD and USFS.

Objective 3. Implement actions to restore upland hydrologic functions, reduce sediment production, increase shade and LWD recruitment potential in riparian areas, and protect fish from entrapment in irrigation ditches. All projects will be monitored for effectiveness.

Products:

Task a). Twenty miles of road (4 miles per year) will be decommissioned in priority subwatersheds. Road decommissions will, at a minimum, include removal of culverts, ripping of the road surface, stabilization of any cracked or unstable fills, and revegetation of the road surface. Elimination of these roads will reduce sediment production and help restore natural drainage on hillslopes affected by the roads.

Task b). Installation of riparian fences in the Rattlesnake Creek, Gilmer Creek, and other priority subwatersheds will protect approximately 12 ½ miles of stream (2.5 miles per year) from the impacts of grazing. This will reduce sediment production and introduction

to streams, and over time improve shade and bank stability by allowing increased vegetative development on the banks.

Task c). Thinning and conifer planting along 12.2 river miles (approximately 135 acres, 27 acres per year) along middle and lower Rattlesnake Creek, and lower Trout Lake Creek will result in better growing conditions for the remaining trees and planted seedlings. Long term, this will result in increased shade and more rapid development of large conifers in the riparian areas.

Task d). Thinning of an additional 30 acres of riparian hardwoods (6 acres per year) will release targeted conifers that currently may have suppressed growth due to competition. Results are similar to those described under Task c above.

Task e). Installation of 7 irrigation diversion screens will reduce the number of fish killed by entrapment or stranding in irrigation ditches.

Objective 4. Expand public involvement and environmental education throughout the watershed through projects that will involve landowners and students in on-ground restoration, monitoring activities, and cooperative planning processes.

Products:

Task a). The first phase of the WCW project will result in the creation of a readily accessible stockpile of “watershed emergency” response materials which will be made available to virtually every watershed stakeholder. The centrally located repository will include stockpiles of erosion control mat, silt fence, oil-absorbent booms, toxic waste containers, grass seed, hay bales, sand bags and other materials in amounts deemed adequate for meeting most common local emergencies

Task b). Phase two of the WCW project will culminate in the construction and installation of at least 5 information / project description signs, 2 watershed kiosks, and 300 nesting boxes for species known to exhibit strong links to water quality and watershed health (e.g., bats and swallows). Landowners and students will be involved in construction, installation and monitoring of boxes. Furthermore, boxes will be distributed free to all landowners willing to develop a land stewardship plan for their properties in cooperation with the UCD and other agencies.

Task c). A total of 2-3 “Whitewater Trash Rodeo” events will be organized during this project. During each such event, an average of 25 tons of waste will be removed from the White Salmon River canyon. Furthermore, 70 participants per event will receive education in various deep-canyon waste removal methods being developed by the UCD, including the use of floating containers, skylines, helicopters and rafts.

Task d). The Columbia High StreamWalk™ class will educate 20 students per year in the science of watershed assessment and restoration. Students will receive extensive training in water quality monitoring techniques, including continuous temperature recorders, fecal

coliform analysis and others. Each student will produce a graded monitoring report at the end of the term, from which an assessment of program achievement will be derived.

Task e). A watershed symposium will be hosted in 2003 by the WMC and TAC designed to convey the technical and educational results of this five-year project. The workshop will target the involvement of at least 75 scientists, educators, landowners and others who are interested in the promotion of watershed enhancement in southwestern Washington and northwestern Oregon. The event will provide a forum for sharing the successes and shortcomings of the White Salmon effort in light of other projects occurring in the Mid-Columbia region.

Objective 5. Validate overall effectiveness of restoration work and track water quality conditions over time.

Products:

Task a). Basic water quality data will be available from 18 monitoring stations located throughout the watershed. Data will include: continuously recorded water temperature (collected through summer months), nutrients, bacteria, pH, turbidity, dissolved oxygen and conductivity (collected in grab samples to be taken quarterly and/or during discretionary sampling).

Task b). Annual review and analysis of the data by the Technical Advisory Committee will result in a summary of water quality conditions, identification of potential problem areas in the watershed, and provide the basis for a long term gauge of the effectiveness of enhancement activities.

**c. Rationale and significance to Regional Programs.**

The NPPC (section 7.6C of the Fish and Wildlife Program, e.g.) and the ISG (1996) have recommended a holistic, watershed approach to be used to identify key physical and biological limitations for the recovery of salmon and steelhead stocks. The activities we have proposed for the Big White Salmon River watershed would meet the FWP goals through interagency cooperation along with public participation. We have proposed an on-the-ground, multi-faceted, and broad-scale restoration project. The proposed activities will serve to directly or indirectly restore steelhead to the subbasin, and will provide managers with the data needed to make informed decisions on future restoration projects. We intend on fostering long-term community involvement through participation in committees and through on-the-ground restoration activities. This effort is expected to strengthen relationships and foster healthy stewardship that will last for generations to come.

This proposal meets the intent of collaborative restoration efforts described in measures 7.6D and 7.7A of the FWP by stressing the importance of landowner and

community participation in restoration activities. The ongoing efforts of the Watershed Management Committee operating within a local watershed has developed a functional avenue through which all stakeholders, including public and private entities, will be able to work in concert toward common restoration goals.

This proposal is consistent with FWP goals described in measures 7.8D, F, G, I serves to directly benefit water quality and fish habitat. Active riparian fencing and evaluation of water diversions are examples of activities targeting water quality and fish habitat.

Our proposal seeks to classify fish habitat and determine fish species composition and distribution. This information is particularly relevant to the reintroduction of steelhead above Condit Dam (FWP measure 7.10B). We seek to assess key physical habitat and biological components which will verify assumptions made about fish habitat availability species interaction and bull trout distribution as discussed in Condit Hydroelectric Project, DEIS and measures 7.1A, 10.5A, 2.2A, 5.9A, 7.1, 7.1C, and 7.8B of the Fish and Wildlife Program.

White Salmon watershed restoration has garnered much support from a diverse group of stakeholders. The Underwood Conservation District, USDA Forest Service, US Fish and Wildlife Service, WA. Dept of Ecology, Klickitat County, Champion timber company and private citizens have a high degree of interest in the long term restoration and conservation of this unique resource.

#### **d. Project history**

As described in section 3, BPA has donated \$14,000 in-kind services to the White Salmon Watershed Enhancement project in recent years. In 1995 and again 1997, BPA Aircraft Services donated use of a Jet Ranger II helicopter to accomplish removal of car bodies and other large debris from the White Salmon canyon near BZ Corners. Through their efforts, local citizens were able to remove and recycle an estimate 50 tons of material. In recognition of BPA's efforts, they were awarded a White Salmon WMC Stewardship Award signed by Governor Locke in December of 1997. Note that two additional watershed clean-up events are planned for accomplishment under this current proposal.

#### **e. Methods.**

Objective 1 (Tasks a-d). Coordination of the WMC and TAC will continue to utilize methodologies established by the UCD and cooperators during initiation of the White Salmon River Watershed Enhancement Project beginning in 1992. Many design templates were examined by the WMC prior to format adoption, including the Applegate Partnership, Grande Ronde Watershed and Puget Sound processes. A hybrid process was finally adopted which utilizes most of the components of the Puget Sound process

(Managing Nonpoint Pollution: An Action Plan for Puget Sound Watersheds, 1991, Puget Sound Water Quality Authority, Seattle).

Objective 2 (Task a). Stream habitat and riparian surveys will be done on 40 miles of USFS and private land streams. Streams to be surveyed on FS land include: Wicky Creek, Morrison Creek, Buck Creek, No-name creek, Cascade Creek, Gotchen Creek, Hole in the Ground Creek, Green Canyon Creek, and Ninefoot Creek. The surveys will follow the USFS Region 6 Stream Inventory Handbook guidelines for Level 2 surveys. This survey will quantify key habitat types (i.e. pools, riffles), key habitat features (i.e. LWD, spawning substrate) and classify channel types according to Rosgen (1994). Riparian surveys will distinguish vegetation into major plant association types, seral stage, amount and locations of landslides, mass wasting, other areas of bare ground, and grazing impacts. An emphasis will be placed on locating and assessing restoration needs. Fish population sampling will follow the Hankin and Reeves methodology (1988). Electrofishing and/or daytime snorkeling will be done on all streams with no suitable bull trout habitat. In all streams with suitable bull trout habitat night snorkeling and minnow trapping will be conducted. Streams on USFS land to be surveyed for bull trout include: Cascade Creek, Buck Creek, Wicky Creek, Morrison Creek, and the White Salmon River mainstem.

Task b). Location of all water diversions will be identified and mapped with the assistance of landowners and irrigation companies. All fish passage problems will be described and recommendations made to improve. Fish screens will be purchased and placed on unscreened water diversions in fishbearing waters with the cooperation of the landowner and irrigation company.

Task c). Existing and new water quality data from UCD, USFS, and Yakama Indian Nation will be combined in an Access database that is spatially linked to monitoring locations through ARC INFO. Watershed-wide stream survey data will similarly be consolidated in the SMART database which is spatially linked through the ARC INFO system. Existing coverage in the USFS GIS will be expanded to include all ownership's in the watershed. This work will occur under an MOU to be developed between the USFS and UCD.

Objective 3. Task a). Twenty miles of road will be decommissioned (4 miles per year) within the watershed to reduce sediment inputs and restore upslope hydrologic function. Roads on USFS land will be decommissioned in accordance with the USFS Technology and Development Manual (1996) after appropriate NEPA work is completed. Decommissions occurring on state and private land will meet state prescribed standards. Work will be conducted using best management practices, and in accordance with the Washington Hydraulic Permit Approval process. Culverts will be removed, and these sites will be treated with a combination of native (or non-invasive) grass seed, erosion control matting, mulch, and hardwood plantings to stabilize and control surface erosion. Road surfaces will be ripped through the rooting zone, and treated with native (or non-invasive) grasses, shrubs and/or trees. Unstable portions of fill will be removed and

stabilized. Effectiveness of the stabilization and revegetation of the road will be assessed using permanent photo points established at selected project sites. Candidate roads are listed in the Trout Lake Creek, Cave/Bear Creeks, and Rattlesnake Creek (Panakanic) watershed analyses.

Task b). Twenty-five miles of riparian protection fence (5 miles per year) will be installed in areas with identified needs. Exact locations of the proposed fencing will be determined from the stream and riparian surveys identified under objective 2. Fences will be constructed of 4-strand barbed wire, and will be designed in accordance with NRCS specifications.

Tasks c) and d). These tasks propose thinning of riparian vegetation in approximately 165 acres across the watershed (33 acres per year), and planting conifers (under Task c only) in approximately 135 of those acres (27 acres per year). The proposed thinning would entail removal of some of the small conifers, hardwoods or shrubs in the riparian area to reduce competition for nutrients and sunlight. The objective is to accelerate growth of the remaining trees, to promote shade and faster development of large trees in the riparian area. Areas identified for thinning would be identified so as not to remove existing trees that are providing critical shade or bank stability to streams.

Task e). Up to seven irrigation diversion screens will be installed under this task to protect fish from getting stranded in irrigation ditches. UCD will work with landowners to help educate them on the values of screening. Technical design assistance will be offered, as well as cost share options for the landowner.

Task f). Permanent photo stations will be established at selected restoration projects to assess the effectiveness of treatments. Photo stations will consist of a permanently fixed support upon which a rotating platform is attached. A camera is placed on the platform and can take a panoramic series of photos at specified intervals. Comparison of these photos provides an excellent monitoring tool. This method has proven effective on restoration projects previously completed in the White Salmon watershed.

#### Objective 4.

Task a). The phase one WCW project will be a cooperative effort involving watershed agencies and businesses in the establishment of a functional, centrally accessible stockpile of watershed emergency response materials. Cooperators will include county emergency response departments, USFS, adjacent watershed groups, public works departments, sheriff offices, and businesses. Access to stockpiles will be coordinated and publicized. Stockpile space will be provided as an in-kind donation. Materials will be made available on request, with the understanding of re-imbursable cost. The TAC, UCD and other cooperators will accomplish oversight of the project.

Task b). The phase two WCW project will result in long-term improvements to public stewardship behavior by involving local residents in the construction, installation and

monitoring of “watershed enhancement commodities” such as educational signs, kiosks, erosion control structures and habitat boxes. Boxes, as example, will be offered free-of-charge to landowners under a cost-share program, if the landowner is willing to design and implement a stewardship plan covering his or her property. Watershed benefits will therefore accrue based upon installation of the commodity, and consequent to the landowner’s implementation of a watershed stewardship plan.

Task c). The White Salmon River Whitewater Rodeo event will seek to involve local landowners and volunteers in river stewardship via the clean up of several solid waste sites along the river. Volunteers will be involved in the application of several innovative river clean-up methods developed under the project during past years. Two very visible means will be utilized to accomplish debris removal from the canyon. First, local kayakers will be involved in the “herding” of watertight trash filled containers down a 5-mile stretch of the “wild and scenic” designated section near BZ Corners. Containers will then be off-loaded at Northwestern Lake for disposal. The second anticipated removal method would utilize helicopters for lifting and transporting auto bodies/other large debris, which had been dumped on the river shore decades ago. Volunteers will help with filling cargo nets, rigging, and unloading trash from the nets at the disposal site. The third method for removing trash will involve the use of volunteer rafts, river outfitters and individuals to clean-up dispersed debris along the river. A primary in-kind contributor to the event will be the NorthWest Service Academy (AmeriCorp program) who will assist in event coordination and community education. Local and regional newspapers and television stations will report the events.

Task d). The Columbia High School StreamWalk™ project is now in its fourth year of operation. It targets water quality monitoring of Rattlesnake Creek using a curriculum modified from both Project Green and EPA Region 10’s StreamWalk™ methods. Future improvements to the class will include adoption of restoration projects designed to reduce above-standard temperatures in Rattlesnake Creek.

Objective 5. Task a). This task proposes to conduct water quality monitoring at 18 stations across the watershed to assess overall effectiveness of watershed treatments on water quality. These stations are not set up to monitor individual projects, but will allow for identification of changes in water quality at the subwatershed scale. Currently, there is approximately three years of baseline data from these stations. Sampling and analysis procedures will follow standard methods under a Department of Ecology approved Quality Control and Quality Assurance plan developed by the UCD and USFS. Regularly scheduled sampling will occur quarterly to assess seasonal variation in water quality parameters, and discretionary monitoring will be done to identify changes in water quality during particular flow conditions.

Task b). The TAC will conduct annual review and analysis of water quality data. The purpose is to identify changes in overall water quality from each of the major subwatersheds within the White Salmon sub-basin. The data will be used diagnostically as an indicator of upstream and upslope watershed conditions, and will allow for long

term monitoring of changes in water quality. Determination of background (current) conditions for most general water quality parameters has been under way in the watershed for the past five years through work by the UCD and USFS. Data analysis will entail identification of change in individual parameters from the current levels. Long term changes in water temperature will be assessed using a degree-day approach to account for the strong annual variations in ambient temperature. Analysis of all data will include indexing samples to season of collection and discharge levels obtained from the USGS gauging station on the lower White Salmon River.

**f. Facilities and equipment.**

All major facilities and equipment needed to complete the proposed work plan are presently secured. The UCD and USFS will donate Field and monitoring equipment (including spectrophotometer for nitrate/nitrite analysis) for use. The UCD, NRCS and USFS will provide transportation including trucks. Furthermore, all laboratory space, offices, computers, workshops will be supplied by the USFS, UCD, USF&WS and NRCS.

**g. References.**

Champion Pacific Timberlands, Inc. 1997. Panakanic Watershed Analysis. Western Watershed Analysis. Lewiston, ID.

Coffin, B. 1993. Water quality monitoring results, White Salmon River basin assessment and enhancement project. Memo to district ranger. Mt. Adams Ranger District, Trout Lake, Washington.

FERC #2342 Joint Fishery Party Intervenes. 1995. Joint Agency/Tribal Plan for the Ecosystem of the White Salmon River.

Hankin, D.G., and G.H. Reeves. 1988. Estimating total fish abundance and total habitat area in small streams based on visual estimation methods. Canadian Journal of Fisheries and Aquatic Sciences 45:834-844.

Mathews, J.L. 1992. Eastern Washington stream temperatures and variables influencing them. Yakima Indian Nation, TFW program. Toppenish, Washington.

Phelps, S.R. 1990. Electrophoretic characterization of five rainbow trout collections from the White Salmon River, Washington and determination of their genetic similarities to four hatchery strains. Washington Department of Fisheries, Olympia, Washington.



- Stampfli, Steve M. 1992. White Salmon River Basin Assessment and Watershed Enhancement Project - Water Quality Monitoring and Quality Assurance Plan. Underwood Conservation District. White Salmon WA.
- Stampfli, Steve M. 1992. White Salmon River Basin Assessment and Watershed Enhancement Project - Basin Water Quality Investigation Report. Underwood Conservation District. White Salmon, WA.
- Underwood Conservation District. 1994. White Salmon River Basin Assessment and Watershed Enhancement Project - Land-use Inventory Report. Underwood Conservation District. White Salmon WA.
- USFS and BLM 1994. Record of Decision for amendments to Forest Service and Bureau of Land Management planning documents within the range of the northern spotted owl.
- USFS 1995. Upper White Salmon River Watershed Analysis. Mt. Adams Ranger District, Trout Lake, Washington.
- USFS 1996. Trout Lake Creek Watershed Analysis. Mt. Adams Ranger District, Trout Lake, Washington.
- USFS 1997. Cave/Bear Creeks Watershed Analysis. Mt. Adams Ranger District, Trout Lake, Washington.
- WA Department of Ecology, 1989. Nonpoint source pollution assessment and management program. DOE. Olympia, Washington.
- WA Department of Wildlife. 1990. White Salmon River subbasin - salmon and steelhead production plan. DOW. Olympia, Washington.
- White Salmon River Watershed Management Committee. 1994. White Salmon River Watershed Enhancement Plan. Underwood Conservation District. White Salmon, WA.

## **Section 8. Relationships to other projects**

## **Section 9. Key personnel**

Steve Stampfli	UCD	Watershed Coordinator	616 hrs.
Duties: Project Management, Watershed Committee and TAC leader, community education, restoration facilitator, water quality monitoring			
Betsy Scott	USFS	Fish Biologist	440 hrs.
Duties: Riparian, fish habitat and population surveys, restoration, TAC member			
Bengt Coffin	USFS	Hydrologist	216 hrs.
Duties: Water quality monitoring, restoration, TAC member			
Lee Carlson	YIN	USFS/Tribal Liaison Biologist	In-kind
Duties: Fish population sampling			
J.Gardner Johnston	UCD	Watershed Technician	984 hrs.
Duties: Watershed committee involvement, education,			
Joe Hiss	USFW	Fish and Wildlife Biologist	In-kind
Duties: Bull trout population sampling			

## Resume for: Steve Stampfli

### Experience

- 1988-Present    Manager, Underwood Conservation District, White Salmon, WA.  
Current responsibilities: Guide functions of the district including office management, technical assistance to private landowners and governments on natural resource topics, grant writing and administration, and managing on-ground projects.
- 1984-1987    Environmental Coordinator, Wharf Resources Inc. Annie Creek Mine, Lead, SD.
- 1981-1984    Director, SD Department of Water and Natural Resources – Exploration and Mining Program, Pierre, SD.
- 1980-1981    Mine Reclamation Specialist, SD Department of Water and Natural Resources, Pierre, SD.

<u>Education:</u>	<u>School</u>	<u>Degree Received</u>
	Duke University, Durham, NC	Masters of Environmental Management
	Colorado College, Colorado Springs, CO	B.A., Biology

Expertise: Prime topics of expertise include watershed management methodology, disturbed land restoration, environmental monitoring and coordination of various governments and private interests.

### Publications and Reports (five most relevant)

- Stampfli, S. 1994a. White Salmon River watershed: basin land-use investigation report. Underwood Conservation District White Salmon, WA.
- Stampfli, S. 1994b. White Salmon River watershed: basin water quality investigation report. Underwood Conservation District, White Salmon, WA.
- Stampfli, S. 1992. Restoration of steep slopes adjacent to roadways in south central Washington. Underwood Conservation District, White Salmon, WA.
- Stampfli, S. 1989. Water quality survey of Underwood Conservation District, Skamania and Klickitat Counties, WA. Underwood Conservation District, White Salmon, WA.
- Ring, C., S. Stampfli, and B. Parish. 1986. Broad-winged hawk nesting in the Black Hills of South Dakota. South Dakota Bird Notes. Volume 6, Rapid City, SD.

## Resume for **Betsy Scott**

### Experience

1991 - Present Fisheries Biologist, Gifford Pinchot National Forest, Mt. Adams Ranger District, Trout Lake, Washington.

1986 - 1991 Fisheries Technician, Gifford Pinchot National Forest, Randle Ranger District, Randle Washington, and Wind River Ranger District, Carson Washington.

1981 - 1985 Forestry Technician, Gifford Pinchot National Forest, Randle Ranger District, Randle, Washington.

Expertise: Primary areas of expertise include: interdisciplinary team participation, writing of environmental documents, fisheries habitat and water quality sampling and evaluation in lakes and streams, and fish population sampling.

### Education

B.S. in Fisheries Science, Oregon State University, Corvallis, Oregon, 1991

B.S. in Recreation and Park Management, University of Massachusetts, Amherst, Massachusetts, 1981

### Publications and Reports

Scott, B. 1998. Cave Creek Stream Structure Monitoring Report

Scott, B. 1998. Goose Lake Fish Population Monitoring Report

Scott, B. 1996. Gifford Pinchot National Forest High Lakes Survey Report.

Jones, S. et al. 1992. Umatilla National Forest Forest Health Restoration Project Report.

Farrell, B.(currently B. Scott) and Faler, M. 1990. Rotor Monitoring Project - Goose Lake Fisheries Report.

## Resume for Bengt Coffin

### Experience

- 1991 - Present      Hydrologist, Wind River Ranger District, Gifford Pinchot National Forest, Carson, Washington.
- 1990 - 1991      Hydrologist, Mt. St. Helens National Volcanic Monument, Gifford Pinchot National Forest, Amboy, Washington.
- 1988 - 1990      Research Assistant, College of Forestry, University of Washington, Seattle, Washington.
- 1987 - 1988      Assistant Water Quality Planner, Seattle METRO, Seattle, Washington.
- 1986              Water Quality Technician, City of Bellingham, Bellingham, Washington

### Expertise

Primary areas of expertise include: watershed analysis and watershed processes, water quality monitoring and assessment, upland restoration.

### Education

- M.S. in Wildland Hydrology, University of Washington, 1990.  
B.S. in Physical Geography, Oregon State University, Corvallis, Oregon, 1987.  
A.S. in Forestry, Feather River College, Quincy, California, 1980.

### Publications and Reports

- Coffin, Bengt 1997. Hydrology, water quality and stream channel assessment for the Cave/Bear Watershed Analysis. Mt. Adams Ranger District, Gifford Pinchot National Forest.
- Coffin, Bengt 1996. Hydrology, water quality and stream channel assessment for the Trout Lake Creek Watershed Analysis. Mt. Adams Ranger District, Gifford Pinchot National Forest.
- Coffin, Bengt 1993. Water quality monitoring results, White Salmon River basin assessment and enhancement project. Mt. Adams Ranger District, Gifford Pinchot National Forest.
- Coffin, Bengt, and Harr, Dennis 1992. Effects of forest cover on volume of water delivery to soil during rain-on-snow. Final report submitted to Sediment, Hydrology and Mass Wasting Steering Committee.
- Coffin, Bengt 1991. Effects of forest cover on rate of water delivery to the soil during rain-on-snow. Masters Thesis, University of Washington, Seattle, Washington.

## **Resume for: J. Gardner Johnston**

### Experience

1995-Present Watershed Coordinator, Underwood Conservation District, White Salmon, WA.

Current responsibilities: Facilitate Wind River Action Committee. Coordinate and implement water quality restoration projects. Conduct water quality monitoring.

1995 Volunteer, Northwest Service Academy/AmeriCorps, Trout Lake, WA.

1993-1994 Manager, Little Creek Outdoor Adventures, Chapel Hill, NC.

<u>Education:</u>	<u>School</u>	<u>Degree and Date Received</u>
	University of North Carolina, Chapel Hill	B.A. Biology, 1993

Expertise: My expertise includes implementing on-the-ground watershed restoration activities, supervising restoration work crews, organizing community volunteer events, facilitating diverse stakeholder groups, and conducting ambient water quality monitoring.

### Publications and Reports

Johnston, G., et al. 1996. Sustainability in the White Salmon River watershed. Pages 231-234 *in* Project Management Institute 1996 Proceedings, Boston, MA.

## Resume for: Lee C. Carlson

### Experience

1991-Present USFS/Tribal Liaison Biologist, Fishery Resource Management Program, Confederated Tribes and Bands, Yakama Indian Nation, Toppenish, WA.

Current responsibilities: Tribal Fisheries program liaison to Gifford Pinchot, Wenatchee, and Okanogan National Forests (YIN Ceded Area).

1979-1991 Fishery Biologist, Assistant Fishery Director, Resource Manager; Pyramid Lake Paiute Tribe, Nixon, NV.

1973-1977 U.S. Army

### Education:

#### School

Colorado State University  
Fort Collins, CO

Colorado State University  
Fort Collins, CO

#### Degree and Date Received

B.S. Biology, 1973

2<sup>nd</sup> B.S. Fisheries Biology, 1978

Expertise: My primary areas of expertise include salmonid and catostomid culture and habitat protection. I have conducted water quality monitoring studies in a lake environment, creel census, and lotic fish population sampling. I have advocated for tribal treaty rights since 1979 and have become versed in the NEPA and FACA processes, especially through participation in the Eastern Washington Cascades, Yakima, and Southwest Washington Provincial Advisory Committees.

## Resume for Joseph M. Hiss

### Experience

- 1995 - present Fish and Wildlife, U.S. Fish and Wildlife Service (FWS), Western Washington Office, Lacey Washington.  
Current Responsibilities: Represent FWS Ecosystem Program on the Wind River Action Committee. Implement Northwest Forest Plan on the Gifford Pinchot National Forest by (1) reviewing all projects on North Skill Center outside the Cispus Adaptive Management Area, and (2) representing FWS in all Forest activities affecting bull trout.
- 1979 - 1995 Fishery Management Biologist, FWS Washington Fishery Resource Office, Olympia Washington.
- 1978 -1979 Fishery Biologist, Army Corps of Engineers, Chicago District, Chicago, Ill.
- 1976 -1978 Fishery Biologist, Peace Corps, Columbia.

Expertise: Fisheries Resources (formerly Fishery Management Assistance), northwest Forest Plan. Forest Plan work includes federal watershed analysis, project planning, endangered species consultation, and resource monitoring. Fishery resource work included interagency resource planning, literature review, hydrology, instream flow studies, stream habitat survey, estuarine zooplankton, food habits, irrigation effects, reservoir management research, population estimates, migration studies, creel census, stock status assessment, broodstock collection, and public out reach.

Education: Humbolt State University, Arcata, California, MS in Fisheries, 1983.

### Publications and Reports (most relevant)

- 1998 (in Preparation)—Potential habitat for bull trout (*Salvelinus confluentus*) on the Gifford Pinchot National Forest—a compendium of Forest Service memoranda, stream surveys, and watershed analyses.
- 1995—Effect of past forest practices and stream flow on silt deposition at the Little White Salmon National Fish Hatchery (contribution to Little White Salmon Watershed Analysis).
- 1993—Comprehensive review of Chehalis River Basin fishery resource issues (as required by the Chehalis River Basin Fishery Restoration Act of 1992).
- 1991—Instream flow requirements for Dungeness River salmonids.
- 1985—Effects of Dungeness River irrigation diversions on survival of juvenile salmonids.



## **Section 10. Information/technology transfer**

Given the dynamic nature of a stakeholder-driven watershed restoration project, the communication of results is often best achieved via a local and interactive transfer process. For this reason, the project organizers are proposing to host a White Salmon River watershed restoration symposium at the end of this 5-year workplan (2003). The event will present an overview of watershed condition, project results, summary of future challenges and recognition of significant cooperators and contributors. Targeted participants will include neighboring Washington and Oregon watershed groups, the Gifford Pinchot and Mt. Hood National Forest offices, local educators, landowners, agencies and stakeholder groups. For the sake of economy, a one or two day event is proposed. The location of the event will be within the White Salmon basin.